

Abstract

A pressure sensor having a radially tensioned diaphragm for measuring fluid pressure. The pressure sensor includes a first generally concave metal body member and a second generally concave metal body member, and a radially tensioned flexible metal diaphragm located therebetween that is tensioned by heating the sensor. The first and second body members are formed from a material having a coefficient of thermal expansion in the range of approximately 0.0000056 inch/inch/ $^{\circ}$ F to 0.0000064 inch/inch/ $^{\circ}$ F. The diaphragm is formed from a precipitation hardening metal material having a coefficient of thermal expansion of approximately 0.0000060 inch/inch/ $^{\circ}$ F. The first body member and the second body member are formed from a ferromagnetic metal material such that the first and second body members shield the diaphragm from magnetic fields which may otherwise cause movement of the diaphragm.